

MOD

MHz
8 175 – 8 750

Allocation to Services		
Region 1	Region 2	Region 3
8 175 - 8 215	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE ADD S5.462A S5.463	
8 215 - 8 400	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE ADD S5.462A S5.463	

MOD

MHz
8 175 – 8 750

Allocation to Services		
Region 1	Region 2	Region 3
8 500 – 8 550	RADIOLOCATION S5.468 S5.469	
8 550 – 8 650	RADIOLOCATION SPACE RESEARCH (active) EARTH EXPLORATION-SATELLITE (active) S5.463A S5.468 S5.469	
8 650 – 8 750	RADIOLOCATION S5.468 S5.469	

ADD S5.463A In the band 8 550 - 8 650 MHz, stations in the earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service.

MOD S5.466 *Different category of service:* in Israel, Malaysia, Singapore and Sri Lanka, the allocation of the band 8 400 - 8 500 MHz to the space research service is on a secondary basis (see No. S5.32).

MOD S5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, the Congo, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syria, Democratic People's Republic of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8 500 - 8 750 MHz is also allocated to the fixed and mobile services on a primary basis.

MOD

MHz
8 750 - 10 000

Allocation to Services		
Region 1	Region 2	Region 3
9 500 - 9 800	RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) EARTH EXPLORATION-SATELLITE (active) S5.476A	

ADD S5.476A In the band 9 500 - 9 800 MHz, stations in the earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radionavigation and radiolocation services.

MOD S5.477 *Different category of service:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Democratic People's Republic of Korea, Singapore, Somalia, Sudan, Sweden, Trinidad and Tobago, and Yemen, the allocation of the band 9 800 - 10 000 MHz to the fixed service is on a primary basis (see No. S5.33).

MOD S5.478 *Additional allocation:* in Azerbaijan, Bulgaria, Kazakstan, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Turkmenistan and Ukraine, the band 9 800 - 10 000 MHz is also allocated to the radionavigation service on a primary basis.

MOD S5.480 *Additional allocation:* in Brazil, Costa Rica, Ecuador, Guatemala, Honduras and Mexico, the band 10 - 10.45 GHz is also allocated to the fixed and mobile services on a primary basis.

MOD S5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, China, Colombia, the Republic of Korea, Costa Rica, Egypt, the United Arab Emirates, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kazakstan, Kuwait, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Democratic People's Republic of Korea, Romania, Russia, Tajikistan, Turkmenistan, Ukraine, Yemen and Yugoslavia, the band 10.68 - 10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

MOD

GHz
10.7 – 12.75

Allocation to Services		
Region 1	Region 2	Region 3
11.7 – 12.5 FIXED BROADCASTING BROADCASTING-SATELLITE Mobile except aeronautical mobile	11.7 – 12.1 FIXED S5.486 FIXED-SATELLITE (space-to-Earth) Mobile except aeronautical mobile S5.485 S5.488	11.7 – 12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE
	12.1 – 12.2 FIXED-SATELLITE (space-to-Earth) S5.485 S5.488 S5.489	
	12.2 – 12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	12.2 – 12.5 FIXED MOBILE except aeronautical mobile BROADCASTING
	S5.487 S5.487A MOD S5.492	S5.487 S5.487A MOD S5.492
	S5.488 S5.490 S5.492 S5.487A	12.5 – 12.75 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING-SATELLITE MOD S5.493

ADD S5.487A

Additional allocation: in Region 1, the band 11.7 - 12.5 GHz, in Region 2, the band 12.2 - 12.7 GHz and in Region 3, the band 11.7 - 12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-GSO systems and subject to the provisions of Resolution COM5-19.

- MOD S5.492** Las asignaciones a las estaciones del servicio de radiodifusión por satélite conformes al Plan regional pertinente del apéndice S30 podrán ser utilizadas también para transmisiones del servicio fijo por satélite (espacio-Tierra), a condición de que dichas transmisiones no causen mayor interferencia ni requieran mayor protección contra la interferencia que las transmisiones del servicio de radiodifusión por satélite que funcionen de conformidad con este Plan. Con respecto a los servicios de radiocomunicación espacial, esta banda será utilizada principalmente por el servicio de radiodifusión por satélite.
- MOD S5.493** En la Región 3, en la banda 12,5 - 12,75 GHz, el servicio de radiodifusión por satélite está limitado a una densidad de flujo de potencia que no rebase el valor de $-111 \text{ dB(W/m}^2\text{)/27 MHz}$ para todas las condiciones y para todos los métodos de modulación en el borde de la zona de servicio.
- MOD S5.494** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Republic, the Congo, Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, Syria, Senegal, Somalia, Sudan, Chad, Togo, Yemen and Zaire, the band 12.5 - 12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- MOD S5.495** *Additional allocation:* in Bosnia and Herzegovina, Croatia, Denmark, France, Greece, Liechtenstein, Monaco, Norway, Uganda, Portugal, Romania, Slovenia, Switzerland, Tanzania, Tunisia and Yugoslavia, the band 12.5 - 12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.
- MOD S5.496** *Additional allocation:* in Austria, Azerbaijan, Kyrgyzstan, Turkmenistan and Ukraine, the band 12.5 - 12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those mentioned in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries mentioned in this footnote. The power flux-density limit at the Earth's surface given in Article S21, Table S21-4 for the fixed-satellite service shall apply on the territory of the countries mentioned in this footnote.

GHz
12.5 – 14.25

Allocation to Services			
	Region 1	Region 2	Region 3
NOC	12.75 – 13.25	FIXED FIXED-SATELLITE (Earth-to-space) S5.441 MOBILE Space Research (deep space) (space-to-Earth)	
MOD	13.25 – 13.4	AERONAUTICAL RADIONAVIGATION S5.497 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) S5.498A S5.499	
	13.4 – 13.75	RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH Standard Frequency and Time Signal-Satellite (Earth-to-space) S5.499 S5.500 S5.501 S5.501A S5.501B	
	13.75 – 14	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Standard Frequency and Time Signal-Satellite (Earth-to-space) Space Research S5.499 S5.500 S5.501 S5.502 S5.503 S5.503A	

SUP S5.498

ADD S5.498A The earth exploration-satellite (active) and space research (active) services operating in the band 13.25 - 13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service.

MOD S5.500 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, the Lebanon, Madagascar, Malaysia, Mali, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, Syria, Senegal, Singapore, Sudan, Chad and Tunisia, the band 13.4 - 14 GHz is also allocated to the fixed and mobile services on a primary basis.

MOD S5.501 *Additional allocation:* in Austria, Azerbaijan, Bulgaria, Hungary, Japan, Mongolia, Kyrgyzstan, Romania, the United Kingdom, Turkmenistan and Ukraine, the band 13.4 - 14 GHz is also allocated to the radionavigation service on a primary basis.

ADD S5.501A The allocation of the band 13.4 - 13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis.

ADD S5.501B In the band 13.4 - 13.75 GHz, the earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service.

MOD

GHz
12.5 – 14.25

Allocation to Services		
Region 1	Region 2	Region 3
14 – 14.25	FIXED-SATELLITE (Earth-to-space) S5.506 RADIONAVIGATION S5.504 Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research S5.505	

MOD S5.505 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Australia, Bahrain, Bangladesh, Botswana, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, Pakistan, the Philippines, Qatar, Syria, the Democratic People's Republic of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad and Yemen, the band 14 - 14.3 GHz is also allocated to the fixed service on a primary basis.

MOD

GHz
14.25 - 14.8

Allocation to Services		
Region 1	Region 2	Region 3
14.25 - 14.3	FIXED-SATELLITE (Earth-to-space) S5.506 RADIONAVIGATION S5.504 Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research S5.505 S5.508 S5.509	
14.3 - 14.4 FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-Satellite	14.3 - 14.4 FIXED-SATELLITE (Earth-to-space) S5.506 Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-Satellite	14.3 - 14.4 FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-Satellite
14.4 - 14.47	FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research (space-to-Earth)	
14.47 - 14.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Radio Astronomy MOD S5.149	

MOD S5.508 *Additional allocation:* in Germany, Austria, Bosnia and Herzegovina, France, Greece, Ireland, Iceland, Italy, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Portugal, the United Kingdom, Slovenia, Switzerland, Turkey and Yugoslavia, the band 14.25 - 14.3 GHz is also allocated to the fixed service on a primary basis.

MOD S5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, the Islamic Republic of Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Pakistan, Qatar, Syria, Slovenia, Somalia and Yugoslavia, the band 15.35 - 15.4 GHz is also allocated to the fixed and mobile services on a secondary basis.

MOD

GHz
14.8 – 17.3

Allocation to Services		
Region 1	Region 2	Region 3
15.4 – 15.43	AERONAUTICAL RADIONAVIGATION ADD S5.511D	
15.43 - 15.63	FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOD S5.511A AERONAUTICAL RADIONAVIGATION MOD S5.511C ADD S5.511D	
15.63 – 15.7	AERONAUTICAL RADIONAVIGATION ADD S5.511D	

MOD S5.511A Use of the band 15.43 - 15.63 GHz by the fixed-satellite service (space-to-Earth) (see Resolution **COM5-8 (WRC-97)**) and (Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under Resolution **46 (Rev.WRC-97)/ No. S9.11A**. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. Also in the space-to-Earth direction, harmful interference shall not be caused to stations of the radio astronomy service using the band 15.35 - 15.4 GHz. The threshold levels of interference and associated power flux-density limits which are detrimental to the radio astronomy service are given in Recommendation ITU-R RA.769-1. Special measures will need to be employed to protect the radio astronomy service in the band 15.35 - 15.4 GHz.

SUP S5.511B

- MOD S5.511C** Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. S4.10 applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340.
- ADD S5.511D** Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4 - 15.43 GHz and 15.63 - 15.7 GHz in the space-to-Earth direction and 15.63 - 15.65 GHz in the Earth-to-space direction. In the bands 15.4 - 15.43 GHz and 15.65 - 15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of -146 dB(W/m²/MHz) for all angles of arrival. In the band 15.63 - 15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed -146 dB(W/m²/MHz) for any angle of arrival, it shall coordinate under Resolution 46 (Rev.WRC-97)/No. S9.11A with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63 - 15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. S4.10 applies).
- MOD S5.512** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, Cameroon, the Congo, Costa Rica, Egypt, El Salvador, the United Arab Emirates, Finland, Guatemala, India, Indonesia, the Islamic Republic of Iran, Jordan, Kuwait, Libya, Malaysia, Morocco, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Singapore, Slovenia, Somalia, Sudan, Swaziland, Tanzania, Chad, Yemen and Yugoslavia, the band 15.7 - 17.3 GHz is also allocated to the fixed and mobile services on a primary basis.

GHz
14.8 – 17.3

Allocation to Services		
Region 1	Region 2	Region 3
NOC	16.6 – 17.1 RADIOLOCATION Space Research (deep space) (Earth-to-space) S5.512 S5.513	
MOD	17.2 – 17.3 RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) S5.512 S5.513 S5.513A	

ADD S5.513A Spaceborne active sensors operating in the band 17.2 - 17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis.

MOD S5.514 *Additional allocation:* in Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Slovenia, Sudan, Sweden, and Yugoslavia, the band 17.3 - 17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. S21.3 and S21.5 shall apply.

MOD S5.516 The use of the band 17.3 - 18.1 GHz by GSO satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. For the use of the band 17.3 - 17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2 - 12.7 GHz, see Article S11. The use of the bands 17.3 - 18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8 - 18.1 GHz (Earth-to-space) in Region 2 by non-GSO satellite systems in the fixed-satellite service is subject to the provisions of Resolution COM5-19.

MOD S5.521 *Alternative allocation:* in Germany, Denmark, the United Arab Emirates, Greece, Slovakia and the Czech Republic, the band 18.1 - 18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. S5.33). The provisions of No. S5.519 also apply.

MOD

GHz
18.6 – 20.2

Allocation to Services		
Region 1	Region 2	Region 3
18.8 – 19.3	FIXED FIXED-SATELLITE (space-to-Earth) MOD S5.523A MOBILE	

MOD S5.523A

The use of the bands 18.8 - 19.3 GHz (space-to-Earth) and 28.6 - 29.1 GHz (Earth-to-space) by GSO and non-GSO fixed-satellite service networks is subject to the application of the provisions of No. S9.11A/Resolution 46 (Rev.WRC-97) and No. S22.2/No. 2613 does not apply. Administrations having GSO networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. S9.11A/Resolution 46 (Rev.WRC-97) with non-GSO networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-GSO networks shall not cause unacceptable interference to GSO fixed-satellite service networks for which complete Appendix 3 notification information is considered as having been received by the Bureau prior to 18 November 1995.

MOD

GHz
18.6 – 20.2

Allocation to Services		
Region 1	Region 2	Region 3
19.3 – 19.7	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.523B MOD S5.523C ADD S5.523E MOD S5.523D MOBILE	

- MOD S5.523C** No. S22.2 of the Radio Regulations shall continue to apply in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix S4 coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995.
- MOD S5.523D** The use of the band 19.3 - 19.7 GHz (space-to-Earth) by GSO/FSS systems and by feeder links for non-geostationary satellite systems in the MSS is subject to the application of the provisions of Resolution 46 (Rev.WRC-97)/No. S9.11A, but not subject to the provisions of No. S22.2. The use of this band for other non-GSO/FSS systems, or for the cases indicated in No. **MOD S5.523C** and **ADD S5.523E**, is not subject to the provisions of Resolution 46 (Rev.WRC-97)/No. S9.11A and shall continue to be subject to Articles S9 (except No. S9.11A) and S11 procedures, and to the provisions of No. S22.2.
- ADD S5.523E** No. S22.2 of the Radio Regulations shall continue to apply in the bands 19.6 - 19.7 GHz and 29.4 - 29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix S4 coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997.
- MOD S5.524** *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Democratic People's Republic of Korea, Singapore, Somalia, Sudan, Tanzania, Chad, Togo, Tunisia and Zaire, the band 19.7 - 21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7 - 21.2 GHz and of space stations in the mobile-satellite service in the band 19.7 - 20.2 GHz where such allocation to the mobile-satellite service is on a primary basis in the latter band.

MOD

GHz
24.45 – 27

Allocation to Services		
Region 1	Region 2	Region 3
25.5 – 27	EARTH EXPLORATION-SATELLITE (space-to Earth) ADD S5.536A ADD S5.536B FIXED INTER-SATELLITE S5.536 MOBILE Standard Frequency and Time Signal-Satellite (Earth-to-space)	

MOD

GHz
27 – 29.9

Allocation to Services		
Region 1	Region 2	Region 3
28.5 – 29.1	FIXED FIXED-SATELLITE (Earth-to-space) MOD S5.523A S5.539 MOBILE Earth Exploration-Satellite (Earth-to-space) S5.541 S5.540	

MOD

GHz
27 – 29.9

Allocation to Services		
Region 1	Region 2	Region 3
29.1 – 29.5	FIXED FIXED-SATELLITE (Earth-to-space) MOD S5.523C ADD S5.523E MOD S5.535A S5.539 MOD S5.541A MOBILE Earth Exploration-Satellite (Earth-to-space) S5.541 S5.540	

- MOD S5.535A** The use of the band 29.1 - 29.5 GHz (Earth-to-space) by the FSS is limited to GSO satellite systems and feeder links to non-GSO satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of Resolution 46 (Rev.WRC-97)/No. S9.11A, but not subject to the provisions of No. S22.2, except as indicated in No. MOD S5.523C and ADD S5.523E where such use is not subject to the provisions of Resolution 46 (Rev.WRC-97)/No. S9.11A and shall continue to be subject to Articles 11/S9 (except No. S9.11A) and 13/S11 procedures, and to the provisions of No. S22.2.
- ADD S5.536A** Administrations installing earth exploration-satellite earth stations cannot claim protection from fixed and mobile stations operated by neighbouring administrations. In addition, earth stations operating in the earth exploration-satellite service should take into account Recommendation ITU-R SA.1278.
- ADD S5.536B** In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, the Republic of Korea, Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Islamic Republic of Iran, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Syria, Slovakia, Czech Republic, Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the earth exploration-satellite service in the band 25.5 - 27.0 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services.
- MOD S5.541A** Feeder links of non-GSO/MSS networks and GSO/FSS networks operating in the band 29.1 - 29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix S4 coordination information is considered as having been received by the Bureau after 17 May 1996 and until it is changed by a future competent world radiocommunication conference. Administrations submitting Appendix S4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable. These methods are also subject to review by the ITU-R (see Resolution 121 (WRC-97)).

MOD S5.542 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, the Islamic Republic of Iran, Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, the Philippines, Qatar, Syria, Democratic People's Republic of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5 - 31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. S21.3 and S21.5 shall apply.

MOD S5.545 *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Kazakstan, Mongolia, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 31 - 31.3 GHz to the space research service is on a primary basis (see No. S5.33).

MOD

GHz
29.9 – 31.8

Allocation to Services		
Region 1	Region 2	Region 3
31.5 – 31.8 EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile MOD S5.149 MOD S5.546	31.5 – 31.8 EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	31.5 – 31.8 EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile MOD S5.149

MOD S5.546 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, United Arab Emirates, Spain, Estonia, Finland, Georgia, Hungary, Iran (Islamic Rep. of), Israel, Jordan, Kazakstan, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Syria, Kyrgyzstan, Romania, the United Kingdom, Russia, Tajikistan, Turkmenistan, Turkey and Ukraine, the allocation of the band 31.5 - 31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. S5.33).

ADD S5.547 The bands 31.8 - 33.4 GHz, 51.4 - 52.6 GHz, 55.78 - 59 GHz and 64 - 66 GHz are available for high-density applications in the fixed service (see Resolution COM5-12 (WRC-97)).

ADD S5.547A Use of the band 31.8 - 33.4 GHz by the fixed service shall be in accordance with Resolution COM5-11 (WRC-97).

MOD

GHz
31.8 – 37

Allocation to Services		
Region 1	Region 2	Region 3
31.8 – 32	RADIONAVIGATION FIXED ADD S5.547A SPACE RESEARCH (deep space) (space-to-Earth) S5.548 ADD S5.547 ADD S5.547B	
32 – 32.3	INTER-SATELLITE FIXED ADD S5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.548 ADD S5.547 ADD S5.547C	
32.3 – 33	INTER-SATELLITE FIXED ADD S5.547A RADIONAVIGATION S5.548 ADD S5.547 ADD S5.547D	
33 – 33.4	RADIONAVIGATION FIXED ADD S5.547A ADD S5.547 ADD S5.547E	

ADD S5.547B *Alternative allocation:* in the United States, the band 31.8 - 32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis.

ADD S5.547C *Alternative allocation:* in the United States, the band 32 - 32.3 GHz is allocated to the inter-satellite, radionavigation and space research (deep space) (space-to-Earth) services on a primary basis.

ADD S5.547D *Alternative allocation:* in the United States, the band 32.3 - 33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis.

ADD S5.547E *Alternative allocation:* in the United States, the band 33 - 33.4 GHz is allocated to the radionavigation service on a primary basis.

***MOD S5.549** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Senegal, Singapore, Somalia, Sudan, Sri Lanka, Togo, Tunisia, Yemen and Zaire, the band 33.4 - 36 GHz is also allocated to the fixed and mobile services on a primary basis.

MOD S5.550 *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 34.7 - 35.2 GHz to the space research service is on a primary basis (see No. S5.33).

MOD

**GHz
31.8 - 37**

Allocation to Services		
Region 1	Region 2	Region 3
35.2 - 35.5	METEOROLOGICAL AIDS RADIOLOCATION S5.549	
35.5 - 36	EARTH EXPLORATION-SATELLITE (active) METEOROLOGICAL AIDS RADIOLOCATION SPACE RESEARCH (active) S5.549 ADD S5.551A	

SUP S5.551

ADD S5.551A In the band 35.5 - 36.0 GHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, meteorological aids and other services allocated on a primary basis.

MOD

GHz
40.5 – 42.5

Allocation to Services		
Region 1	Region 2	Region 3
40.5 – 42.5 BROADCASTING BROADCASTING-SATELLITE FIXED Mobile ADD S5.551B ADD S5.551D	40.5 – 42.5 BROADCASTING BROADCASTING-SATELLITE FIXED Mobile FIXED-SATELLITE (space-to-Earth) ADD S5.551B ADD S5.551C	40.5 – 42.5 BROADCASTING BROADCASTING-SATELLITE FIXED Mobile FIXED-SATELLITE (space-to-Earth) ADD S5.551B ADD S5.551E ADD S5.551C ADD S5.551F

ADD S5.551B The use of the band 41.5 - 42.5 GHz by the fixed-satellite service (space-to-Earth) is subject to Resolution **COM5-16 (WRC-97)**.

ADD S5.551C *Alternative allocation:* in the French overseas territories in Regions 2 and 3, the Republic of Korea and India, the band 40.5 - 42.5 GHz is allocated to the broadcasting, broadcasting-satellite and fixed services on a primary basis.

ADD S5.551D *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Benin, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Qatar, Syria, Tunisia and Yemen, the band 40.5 - 42.5 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. The use of this band by the fixed-satellite service shall be in accordance with Resolution **COM5-29 (WRC-97)**.

ADD S5.551E Use of the band 40.5 - 42.5 GHz by the fixed-satellite service shall be in accordance with Resolution **COM5-29 (WRC-97)**.

ADD S5.551F *Different category of service:* in Japan, the allocation of the band 41.5 - 42.5 GHz to the mobile service is on a primary basis (see No. **S5.33**).

MOD

GHz
42.5 – 54.25

Allocation to Services		
Region 1	Region 2	Region 3
47.2 – 50.2	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE MOD S5.149 S5.340 ADD S5.552A S5.555	

ADD S5.552A The allocation to the fixed service in the bands 47.2 - 47.5 GHz and 47.9 - 48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2 - 47.5 GHz and 47.9 - 48.2 GHz is subject to the provisions of Resolution **COM5-7**.

MOD

GHz
42.5 – 54.25

Allocation to Services		
Region 1	Region 2	Region 3
50.2 – 50.4	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) MOD S5.340 ADD S5.555A	

ADD S5.555A The band 50.2 - 50.4 GHz is also allocated, on a primary basis, to the fixed and mobile services until 1 July 2000.

MOD

GHz
42.5 – 54.25

Allocation to Services		
Region 1	Region 2	Region 3
51.4 – 52.6	FIXED MOBILE S5.556 ADD S5.547	
52.6 – 54.25	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) MOD S5.340 S5.556	

MOD

GHz
54.25 – 71

Allocation to Services		
Region 1	Region 2	Region 3
54.25 – 55.78	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE ADD S5.556A SPACE RESEARCH (passive) ADD S5.557A	
55.78 – 56.9	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE ADD S5.556A MOBILE MOD S5.558 SPACE RESEARCH (passive) MOD S5.557 ADD S5.547	
56.9 – 57	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE ADD S5.556B MOBILE MOD S5.558 SPACE RESEARCH (passive) MOD S5.557 ADD S5.547	
57 – 58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE ADD S5.556A MOBILE MOD S5.558 SPACE RESEARCH (passive) MOD S5.557 ADD S5.547	
58.2 – 59	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.556 ADD S5.547	

Allocation to Services		
Region 1	Region 2	Region 3
59 – 59.3	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) FIXED INTER-SATELLITE ADD S5.556A MOBILE MOD S5.558 RADIOLOCATION S5.559	
59.3 – 64	FIXED INTER-SATELLITE MOBILE MOD S5.558 RADIOLOCATION S5.559 S5.138	
64 – 65	FIXED INTER-SATELLITE MOBILE except aeronautical mobile S5.556 ADD S5.547	
65 – 66	EARTH EXPLORATION-SATELLITE SPACE RESEARCH INTER-SATELLITE FIXED MOBILE except aeronautical mobile ADD S5.547	
66 – 71	MOBILE S5.553 MOD S5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE INTER-SATELLITE S5.554	

ADD S5.556A Use of the bands 54.25 - 56.9 GHz, 57.0 - 58.2 GHz and 59.0 - 59.3 GHz by the inter-satellite service is limited to satellites in the geostationary satellite orbit. The single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/m²/100 MHz) for all angles of arrival.

ADD S5.556B Use of the band 56.9 - 57 GHz by inter-satellite systems is limited to links between satellites in geostationary satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/m²/100 MHz) for all angles of arrival.

MOD S5.557 *Additional allocation:* in Japan, the band 55.78 - 58.2 GHz is also allocated to the radiolocation service on a primary basis.

ADD S5.557A *Additional allocation:* in Japan, the band 54.25 - 55.78 GHz is also allocated to the mobile service on a primary basis for low density use.

MOD S5.558 In the bands 55.78 - 58.2 GHz, 59 - 64 GHz, 66 - 71 GHz, 116 - 134 GHz, 170 - 182 GHz and 185 - 190 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. S5.43).

MOD

GHz
86 – 116

Allocation to Services		
Region 1	Region 2	Region 3
92 – 94	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION MOD S5.149 S5.556	
94 – 94.1	RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) S5.562	
94.1 – 95	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION MOD S5.149 S5.556	

ADD S5.562 The use of the band 94 - 94.1 GHz by the earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars.

MOD S5.564 *Additional allocation:* in Germany, Argentina, Spain, Finland, France, India, Italy and the Netherlands, the band 261 - 265 GHz is also allocated to the radio astronomy service on a primary basis.

ARTICLE S7

NOC S7.1 - S7.8

ARTICLE S8

NOC S8.1

MOD S8.1.1 ¹ The expression "frequency assignment", wherever it appears in this Chapter, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register. Additionally, wherever the expression relates to a space station in the geostationary-satellite orbit or in a non-geostationary-satellite orbit, it shall be associated with item A.4 of Annex 2A to Appendix S4, as relevant.

(S8.2 not used)

MOD S8.3 Any frequency assignment recorded in the Master Register with a favourable finding under No. S11.31 shall have the right to international recognition. For such an assignment, this right means that other administrations shall take it into account when making their own assignments, in order to avoid harmful interference. In addition, frequency assignments in frequency bands subject to coordination or to a plan shall have a status derived from the application of the procedures relating to the coordination or associated with the plan.

MOD S8.4 A frequency assignment shall be known as a non-conforming assignment when it is not in accordance with the Table of Frequency Allocations or the other² provisions of these Regulations. Such an assignment shall be recorded for information purposes, only when the notifying administration states that it will be operated in accordance with No. S4.4 (See also No. S8.5).

NOC S8.4.1 -
S8.5